

*Abstract of the Invention*

It is shown here that *hedgehog* proteins possess novel activities beyond phenotype specification. Using cultures derived from the embryonic day 14.5 (E14.5) rat ventral mesencephalon, we show that *hedgehog* is also trophic for dopaminergic neurons. Interestingly, 5 *hedgehog* not only promotes dopaminergic neuron survival, but also promotes the survival of midbrain GABA-immunoreactive (GABA-ir) neurons.